

**State Of California  
Environmental Protection Agency (Cal/EPA)  
Department Of Pesticide Regulation**

**2002 INTEGRATED PEST MANAGEMENT SURVEY  
OF CALIFORNIA SCHOOL DISTRICTS  
PM03-01**

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<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>BACKGROUND .....</b>	<b>5</b>
<b>METHODOLOGY FOR THE STUDY .....</b>	<b>7</b>
POPULATION FOR THE STUDY .....	7
RESEARCH DESIGN .....	7
QUESTIONNAIRE DESIGN .....	7
DEMOGRAPHICS DATA .....	8
<b>FINDINGS OF THE STUDY .....</b>	<b>10</b>
RESPONDENT CHARACTERISTICS .....	10
PEST MANAGEMENT RECORDS .....	11
FREQUENCY OF INQUIRIES .....	11
INFORMATION SOURCES ACCESSED .....	12
MANAGING ANTS INSIDE SCHOOL BUILDINGS .....	12
MANAGING WEEDS .....	13
CONTRACTS WITH PEST CONTROL BUSINESSES .....	14
ADOPTION AND PERCEIVED EFFECTIVENESS OF INTEGRATED PEST MANAGEMENT PROGRAMS .....	14
SATISFACTION WITH CURRENT PEST MANAGEMENT PRACTICES .....	15
<b>COMPARISONS OF 2002 RESULTS WITH 2001 BASELINE RESULTS .....</b>	<b>17</b>
RECORD KEEPING AND INQUIRIES .....	17
TREATMENT FOR ANTS .....	17
TREATMENT FOR WEEDS .....	18
<b>SUMMARY AND CONCLUSIONS .....</b>	<b>19</b>
AWARENESS OF PROGRAMS .....	19
ADOPTION OF IPM, COST, AND EFFECTIVENESS .....	19
SATISFACTION WITH CURRENT PEST MANAGEMENT PROGRAMS .....	19
COMPLIANCE WITH THE HEALTHY SCHOOLS ACT OF 2000 .....	19
RECORD KEEPING .....	19
ANT PEST MANAGEMENT PRACTICES .....	20
WEED PEST MANAGEMENT PRACTICES .....	20
CONTRACTING .....	20
IPM COMPATIBLE PRACTICES .....	20
REGIONAL AND DEMOGRAPHIC DIFFERENCES .....	21
<b>TABLES .....</b>	<b>22</b>
<b>QUESTIONNAIRE .....</b>	<b>43</b>

## BACKGROUND

In April and May, 2002, the California Environmental Protection Agency's Department of Pesticide Regulation (DPR) conducted a survey of all public school districts in California. This was in response to the Healthy Schools Act of 2000 (HSA) and its mandate to support voluntary integrated pest management (IPM) programs in California schools. This survey is a follow-up to the baseline survey of California school districts conducted in 2001.

The three major purposes of the study were to measure school districts' adoption of IPM, to quantify DPR's progress in implementing the Healthy Schools Act, and to profile districts' pest management activities in terms of demographic and geographic factors. The information obtained from this survey will help evaluate the progress of the California School IPM Program as implementation of the HSA proceeds. The information will also assist in developing and targeting materials to help school districts comply with the law and improve pest management practices.

The goals and subgoals of the survey were to:

1. Measure progress in school districts' adoption of an IPM approach.
  - Characterize monitoring and record keeping approaches
  - Quantify approaches to management of two representative pests
  - Quantify adoption of IPM-oriented policies
  - Measure the relative cost and perceived effectiveness of school IPM programs
2. Measure DPR's progress in implementing the HSA.
  - Measure schools' awareness of the California School IPM Program
  - Measure schools' compliance with the HSA

### 3. Profile school districts' activities related to pest management issues.

- Describe geographical and demographic distribution of community inquiries concerning pest management issues
- Characterize schools' use of pest management information sources
- Quantify the most common contracting arrangements for pest management services

Specific issues under study included:

- What records do school districts keep on pest management activities?
- How do districts' approaches to pest monitoring in 2002 compare with the 2001 baseline?
- How many inquiries do districts receive from the community regarding pest management topics? Are these inquiries concentrated in particular regions?
- Are school districts aware of various information sources on school IPM? Do they access these sources?
- What treatment practices do school districts use for ants, and how effective do they consider those practices to be?
- What treatment practices do school districts use for weeds, and how effective do they consider those practices to be?
- Do school districts use pest control businesses, and for what services?
- Are school districts aware of DPR's California School Integrated Pest Management Program?
- How many school districts claim to have adopted IPM programs, and how effective do they consider them to be?
- Of those districts that claim to have IPM programs, how many use distinctly non-IPM techniques, such as pesticides from aerosol cans?
- Overall, how effective do school districts consider their current pest management programs and other aspects of pest management to be?

## METHODOLOGY FOR THE STUDY

### **Population for the Study**

The population for the study was defined to be all 988 school districts within California. Demographic data on school districts came from the California Department of Education (CDE) public schools databases. Whenever possible, surveys were mailed directly to personnel identified by their district as the HSA “designee” or “IPM coordinator.” DPR had previously contacted all school districts within the state to identify the designee/IPM coordinator. From this, a database was created that had the person’s name, title, mailing address, and telephone number. All members of the population were included in this 2002 survey.

### **Research Design**

Given the nature of the study, a mail questionnaire was considered to be the most appropriate method of data collection. This approach allowed DPR to reach respondents statewide, and to do so at a reasonable cost. The mail survey also was a suitable means to access a group of individuals who might not have time to immediately answer questions by telephone. Furthermore, a mail survey provided respondents with adequate time to consider their responses, thereby improving the reliability of the data.

While mail surveys suffer from the drawback of potentially low response rates, this factor was believed to be more than offset by the advantages already identified. Questionnaires were sent using DPR envelopes with replies going directly to the College of Business Administration at CSUS, an approach that provided greater assurance the envelopes would be opened and the questionnaires completed and returned. Included with each questionnaire was a self-addressed, postage-paid business reply envelope. A cover letter on DPR letterhead, signed by DPR Director Paul Helliker, was included with each survey. Surveys were mailed on April 5, with responses requested by May 15. Surveys were accepted through May 27.

Nonrespondent error was analyzed by examining percentage response rates across geographical regions, and across the demographic categories listed in the CDE’s “pop\_stat” variable.

### **Questionnaire Design**

The questionnaire consisted of 21 questions, many of which contained multiple parts (see Appendix B). Questions focused on the issues identified in the “Introduction” section of this report. In addition, the questionnaires were numbered to identify responding districts for analytical purposes. The questionnaire was developed jointly by DPR and the consultant, and approved by DPR before distribution.

Efforts were made to keep most questions in this survey substantially the same as questions in the 2001 baseline survey<sup>1</sup>. A few questions from the 2001 effort were

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<sup>1</sup> DPR, 2001. *2001 IPM Baseline Survey of School Districts*, California Department of Pesticide Regulation report, June 2001

eliminated because they were considered “one-time” questions that are not needed for long-term program evaluation. A few other questions were clarified to better accommodate comparisons in future years.

Standard techniques for the measurement of IPM adoption do not exist, in part because IPM programs are so diverse and multifaceted. IPM texts<sup>2,3</sup> commonly cite several factors as central to any IPM program: record keeping, monitoring pest populations, emphasizing pest prevention, and applying chemical pesticides only as a last resort. We chose these factors as indicator variables of school IPM adoption, and designed the survey questions accordingly.

In order to measure these indicator variables, specific questions on specific pests were required. In order to keep the survey as short as possible—and therefore maximize response rates—we focused specific pest management questions on two representative categories of pests: weeds and ants. Weeds and ants were chosen because they represent both structural and landscape pest management issues, and because they were ranked the first and third most serious school pests (respectively) in the 2001 Baseline Survey.

After a review of IPM literature,<sup>4</sup> DPR staff classified certain pest management practices mentioned in the survey as clearly “compatible with” or “contrary to” IPM. Classifying responses in this way provides a yardstick for evaluating IPM adoption among the state’s school districts. The classification also allows us to see whether districts’ self-categorization as “IPM” programs translates into better practices on the ground.

#### **Practices compatible with IPM**

- Keeping records of building inspections, pest sightings, results of pest monitoring, and pest treatments used
- Making treatment decisions based on pre-established thresholds (ants or weeds)
- Ant baits
- Improving sanitation for ant control
- Caulking cracks for ant control
- Using physical controls for weeds
- Using irrigation management for weed control
- Using mulches for weed control
- Using flaming for weed control

#### **Practices contrary to IPM**

- Treating at regular time intervals (esp. ants)
- Using insecticidal sprays from an aerosol can for ants
- Using broadcast of herbicides for turf or landscape weeds.

### **Demographics Data**

A subset of the survey results were linked to demographic data, which were obtained from the CDE public schools database. The database contains data on a school-by-school basis,

<sup>2</sup> Smith, R.F. & R. van den Bosch, 1967. Integrated control. In: *Pest Control: Biological, Physical and Selected Chemical Methods*, ed. W.W. Kilgore & R.L. Doutt, pp. 295-340. New York: Academic Press.

<sup>3</sup> Flint, M.L. & R. van den Bosch, 1981. *Introduction to Integrated Pest Management*. New York: Plenum Press.

<sup>4</sup> *Pest Notes*. University of California Statewide Integrated Pest Management Program. <http://www.ipm.ucdavis.edu/PMG/selectnewpest.home.html>

and for each school a variable called “pop\_stat” is listed. “pop\_stat” identifies the demographics of particular schools based on eight categories: 1=large city, 2=mid-size city, 3=urban fringes of large city, 4=urban fringes of mid-size city, 5=large town, 6=small town, 7=rural, outside Metropolitan Statistical Area (MSA), 8=rural, inside MSA. Of the 988 school districts surveyed, 281 contain more than one demographic category, while 707 districts fall uniformly within one demographic category. The latter districts were flagged, and only these flagged districts were included in our demographic analyses.

School districts were also categorized according to county and regions. The regions and their respective counties were:

- ***Sierra:*** Alpine, Amador, Calaveras, El Dorado, Lassen, Mariposa, Modoc, Nevada, Placer, Plumas, Shasta, Sierra, Siskiyou, Tuolumne.
- ***San Joaquin Valley:*** Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, Tulare.
- ***Central Coastal:*** Monterey, San Benito, San Luis Obispo, Santa Cruz.
- ***Southeastern:*** Imperial, Inyo, Mono, Riverside, San Bernardino.
- ***Los Angeles/Surrounding Area:*** Los Angeles, Orange, San Diego, Santa Barbara, Ventura.
- ***North Central:*** Butte, Colusa, Glenn, Sacramento, Sutter, Tehama, Yolo, Yuba.
- ***North Coastal:*** Del Norte, Humboldt, Lake, Mendocino, Trinity.
- ***Bay Area:*** Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma.

## FINDINGS OF THE STUDY

Of the 988 questionnaires mailed, three were returned with incorrect or otherwise no longer valid addresses. This reduced the effective mailing to 985 school districts. By the closure date for receiving responses, a total of 418 completed questionnaires were returned. This resulted in a 42% response rate on the effective mailout.

The accuracy level of the study was evaluated based on this number of responses. Standard deviations for most questions were computed, and the highest one was found to be 0.104 for Question 5 (most frequently used method of managing ants inside school buildings). Using this statistic, the allowable error was computed to be  $\pm 5\%$ .

The findings of the study are presented in eight sections: Respondent Characteristics, Pest Management Records and Inquiries, Information Sources Accessed, Treatment Processes for Ants Inside School Buildings, Treatment Processes for Weeds, Contracts with Pest Control Businesses, Integrated Pest Management Programs, and Overall Pest Management Program Evaluation. Detailed data from the survey are presented in the tables located at the end of this Summary Report.

### **Respondent Characteristics**

Table 1 shows the characteristics of the responding school districts. The single largest group of respondents (23% of the total) came from the Los Angeles/Surrounding Area, followed by Central California (19%), the Bay Area (17%), and the North Coast (13%). In terms of individual counties, 9% of the responding districts were located in Los Angeles County, 6% from San Diego County, and 5% from San Bernardino County (Table 1A). The distribution of school districts that responded to the survey was similar to the distribution of all school districts in the regions. The only exceptions were that a slightly higher percentage of school districts in the Los Angeles/Surrounding Area responded to the survey, and a slightly lower percentage responded from the San Joaquin Valley region.

Among those districts flagged as falling uniformly within one demographic category, the largest group (38% of the total) was from the category “urban fringes of a large city” (see Table 1D). The next largest groups were rural districts outside and inside Metropolitan Statistical Areas (MSAs), at 21% and 18%, respectively.

The distributions of respondents in the geographic regions and in the pop\_stat categories were compared to the respective distributions of all school districts. Based on chi-square tests, no statistically significant differences were found between the distributions of respondents and the total number of school districts in the various geographic regions (chi-square = 3.29, d/f = 7). However, the differences between the respondent group and all school districts in the pop\_stat categories were significant at the 0.05 level (chi-square = 75.00, df = 7). Fewer respondents than expected by chance were located in “urban fringes of a large city,” and more respondents than expected were located in the “rural, inside MSA” locations. This suggests that the respondent sample was somewhat overrepresented by districts located in rural areas inside MSAs, and underrepresented in

urban fringes of large cities. In questions where a clear difference was seen between urban and rural respondents, such as frequency of community inquiries or percentage of districts with IPM programs (see below), we would expect the overall responses to be slightly biased toward the “rural, inside MSA” response.

### **Pest Management Records**

Table 2 contains responses to questions concerning how school districts keep records. The success of an IPM program is linked to its record-keeping system,<sup>5</sup> and the HSA requires districts to keep records of all pest treatments used for a four-year period. Therefore, questions on record keeping are important both for gauging districts’ adoption of IPM and for measuring their compliance with the HSA.

As shown in Table 2A, the great majority of districts (86%) keep records of pest treatments, as required by the HSA. However, less than half of the districts (39%) maintain records of building inspections, 23% keep records of pest sightings, and 18% keep records of pest monitoring; 12% of the districts keep records in all four of the areas included in this survey.

### **Frequency of Inquiries**

The right-to-know portion of the HSA contains no enforcement provisions for DPR or CDE. Therefore, we might expect that concern from local citizens would play a major role in ensuring implementation. The frequency of inquiries from the community on pest management-related topics is an indirect measure of citizen concern on these issues. Geographical differences in the frequency of inquiries might also be expected based on urban versus rural settings (e.g., residents in rural communities may be more familiar with agricultural pesticide use and evaluate the risks of pesticides differently than do their urban counterparts).

As shown in Table 2B, the great majority of districts (90%) indicated they receive inquiries less than once per month. Very few districts (2%) received one or more inquiries per week concerning pest management issues, and these were concentrated in eight counties: Alameda, Los Angeles, Humboldt, Sacramento, Santa Cruz, Ventura, Orange and Riverside. Districts that reported inquiries *at least* once per month—that is, combining the “weekly” and “monthly” results—were most prevalent in the Southeastern region (19%), Bay Area (16%) and Los Angeles/Surrounding Area (12%). Tables 2C and 2D present breakouts of frequency of inquiries, by regions and counties.

When broken out by demographics (Table 2E), fewer inquiries were received in rural areas than in large cities. The percentage of districts reporting at least one inquiry per week was 7% in large city school districts, 8% in mid-sized cities, 3% in urban fringes of large cities, and 0% for all other categories.

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<sup>5</sup> Massachusetts School IPM, 2000. UMass Extension, University of Massachusetts, Amherst. [http://www.umass.edu/umext/schoolipm/school\\_ipm\\_sch04f.htm](http://www.umass.edu/umext/schoolipm/school_ipm_sch04f.htm)



### Information Sources Accessed

Knowing the information sources used by schools for pest management purposes helps gauge the reach of DPR's School IPM Program, and helps to better target future outreach efforts (see Table 3). To compare respondents' awareness of various information sources, we grouped responses for two categories of responses, "aware of but have not accessed" and "have accessed" (see survey in Appendix B).

Information Resource	% Aware
Information from licensed pest control businesses	81%
Brochures/handouts from DPR	77%
DPR School IPM web site	77%
Training on School IPM	74%
Information from other web site sources	61%
University of California resources	57%
Presentation by DPR staff	56%
CDE, School Facility Planning Division	53%

The majority of respondents indicated they were aware of all information resources included in the survey. The best-known information sources were "information from licensed pest control businesses" and "DPR School IPM web site." The least well-known information sources were "CDE, School Facility Planning Division" and "presentations by DPR staff."

The percentages of respondents who indicated they had accessed information sources included in the study were as follows:

Information Resource	% Accessing Information
Information from licensed pest control businesses	67%
Brochures/handouts from DPR	61%
DPR School IPM web site	57%
Training on School IPM	51%
Information from other web site sources	39%
Presentation by DPR staff	29%
University of California resources	27%
CDE, School Facility Planning Division	25%

Answers to this question are consistent with the answers to the previous question. The most commonly accessed information sources were "information from licensed pest control businesses," "brochures/handouts from DPR," and "DPR School IPM web site."

### Managing Ants Inside School Buildings

To measure IPM adoption, specific questions regarding districts' management approaches for ants and weeds were included in the survey. Table 4 presents districts' responses regarding their experiences with ants.

As shown in Table 4A, the single largest group of districts (34%) treats for ants when “first noticed,” and 31% do so “after a certain number of complaints are received.” Another 16% of the districts treat for ants “at regular time intervals,” an approach that is not considered part of a sound IPM program. The smallest percentage of districts (13%) treats for ants “when number of ants exceed pre-established thresholds,” a strategy that is part of a sound ant IPM program.

When asked which methods were used to manage ants inside buildings (Table 4B), the most common responses were “caulk in cracks to prevent entry of ants” (64%), “ant baits” (58%), “soapy water spray” (38%), and “insecticides sprayed using other [non-aerosol can] method” (25%). The single largest group of respondents (32%) indicated that the *one method they most frequently use* to manage ants inside buildings is ant baits, and another 22% use improved sanitation most frequently (Table 4C). The method least compatible with an IPM program—“insecticidal spray from an aerosol can (for example, Raid®)”—was the most frequently used method in 9% of the districts, although 17% of districts reported using this method either alone or in conjunction with other pest management methods. While 64% of the districts reported using caulking, only 4% cited this as the most frequently used method.

Most respondents (75%) rate their efforts at “*preventing* ant problems inside school buildings” to be at least somewhat effective, with 18% rating their efforts “very effective” and 57% rating them “somewhat effective” (Table 4D). Only 13% consider their prevention methods to be somewhat or very ineffective. A slightly greater proportion of respondents (88%) rate their efforts at “*treating* ant problems inside school buildings” to be at least somewhat effective, with 30% rating them “very effective” and 57% rating them “somewhat effective” (Table 4E). Only 7% consider their prevention methods to be somewhat or very ineffective.

### **Managing Weeds**

Table 5 presents district responses regarding their experiences with weeds. As shown, the areas in which they experienced the “most trouble” with weeds are fence rows (32%), landscaping (29%), and “athletic fields/playgrounds” (22%) (Table 5A).

The largest group of districts (35%) treats for weeds “at regular time intervals (for example, monthly)” (Table 5B). The next largest groups treat for weeds “when the abundance exceeds a pre-established threshold” (30%), which is the preferred method in an IPM program. A smaller percentage (23%) treat “when weeds are first noticed.”

The most commonly reported method for managing weeds (68%) is “physical controls such as hand pulling, cultivating, mowing,” which is a preferred method in weed IPM programs (Table 5C). Slightly fewer districts (61%) reported using “regular spot treatment of turf and/or landscaping with herbicides.” A minority reported using mulches (26%) and “regular broadcast treatment of turf and/or landscaping with herbicides” (23%).

The single largest group of respondents (42%) indicated that the *one method they most frequently use* is “physical controls” (Table 5D). Another 34% use “regular spot treatment of turf/landscaping with herbicides.” “Flaming,” “irrigation management,” and “use of mulches” were all cited by relatively few districts (2%, 2%, and 3%, respectively).

A total of 77% of the districts consider their current efforts to *prevent* weeds to be effective, with 56% rating their efforts “somewhat effective” and 21% rating them “very effective” (Table 5E). A considerably larger number of respondents (91%) rated their efforts to *treat* weeds as effective, with 58% rating their efforts “somewhat effective” and another 33% rating them “very effective.”

### **Contracts with Pest Control Businesses**

Table 6 presents responses to questions concerning district use of pest control businesses. The majority of districts (53%) use pest control businesses for food service area pest control (Table 6A). Less than half of the districts indicated they use pest control businesses for indoor pest control other than in the food service area (45%), outdoor pest control (36%), and structural pest control (34%). The various combinations of contracts for services with pest control businesses also are shown in Table 6B. The most frequent combinations of contracts with pest control businesses were: 1) contracts for pest management services in all four areas (i.e., structural, food service area, indoor other than food service area, outdoor), 2) contracts for the food service area only, and 3) contracts for the structural, food service area, and indoor area other than the food service area.

### **Adoption and Perceived Effectiveness of Integrated Pest Management Programs**

Table 7 presents responses to questions pertaining to the awareness of DPR's California School IPM program, adoption of integrated pest management programs, and perceived effectiveness of IPM by those who reported adopting it.

As shown, the great majority of respondents (87%) are aware of the DPR's California School IPM program (Table 7A). Furthermore, most districts (70%) indicate that they have adopted some type of IPM program, and have done so for an average of 2.6 years (median = 2 years, mode = 1 year, range = 1-20 years) (Table 7B,C).

The number of school districts that have IPM programs, broken out by region, county, and demographics (CDE's pop\_stat code), are shown in Tables 7D, 7E, and 7F. The percentage of districts in the Southeastern region indicating that they have IPM programs (87%) was higher than the percentage in the other regions, and the percentage of districts in the rural areas that have IPM programs is somewhat lower than that in the other geographic categories. It appears that districts reporting having IPM programs also have somewhat more community inquiries than other districts (Table 7G).

Finally, the methods used to treat for ants and weeds were cross-tabulated with districts' reported adoption of IPM programs (Table 7H). Most comparisons of the “IPM” and “non-IPM” districts were as expected, that is, more districts employing IPM tend to use preventive measures and baits, while fewer IPM districts use insecticides. However,

even among “IPM” districts, 13% continue to use insecticides in aerosol cans—a measure contrary to sound IPM program practices. (For clarity of interpretation, districts reporting “do not have IPM program” are pooled with districts reporting “not sure.” Here the assumption is that if the respondent—the district school designee/IPM coordinator—does not know whether the district has an IPM program, then the district probably has no such program.

With respect to weed management, more “IPM” districts tend to use reduced-risk practices such as mulches, physical controls, irrigation management and flaming. However, 21% of “IPM” districts still use broadcast herbicides for managing weeds. This method is also considered contrary to sound IPM practices.

The percentages of respondents who indicated that their school districts had “officially adopted (through a school board action or administrator's directive)” particular IPM-related practices or policies are shown in Table 7I. The most common practices/policies reported were posting warning signs, providing annual notification of expected pesticide use, maintaining a list of parents wanting to be notified, and maintaining a list of pesticides used for four years. These are the four items that are specifically required by the HSA. A large majority of California school districts (71%) have officially adopted at least three of these four provisions. About half (49%) have adopted all four provisions.

### **Satisfaction with Current Pest Management Practices**

Table 8 shows districts’ satisfaction with the safety and effectiveness of their current pest management program, and their ratings of various other aspects of pest management.

When asked to evaluate the *effectiveness* of their district’s IPM program, the single largest group of respondents (41%) indicated that their school district’s IPM program has resulted in more effective pest management, and another 19% were uncertain of its effects. However, 20% of the respondents reported that their IPM program resulted in less effective pest management (Table 8A).

Results concerning the long-term cost effectiveness of IPM were mixed (Table 8B). About equal percentages of respondents reported that their district's IPM program “increased the long-term costs of pest management” (28%) and “reduced the long-term cost of pest management” (28%). Another 25% felt that the IPM program “had no impact on long-term costs of pest management.” Accordingly, 53% of the responding districts indicated that their IPM programs either reduced long-term costs or had no impact on those costs.

The majority of respondents (52%) rated the safety of their current pest management program to be “very good,” and another 38% rated it as “good” (Table 8C). Therefore, 90% of the respondents rated the safety of their programs as either “very good” or “good.” Only 1% rated them as “poor” or “very poor.”

Respondents graded their school districts' status (within the past year) on six factors related to the success of school IPM programs (Table 8D). The majority of respondents rated "overall reduction of exposure to pesticides," "contracting procedures used for hiring outside pest control services," and "communications between district pest managers and other district staff (teachers, administrators) on pest management issues" to be "good." The aspects of pest management receiving the largest percentages of "poor" ratings were "training opportunities for district staff in pest management," "availability of technical information on pest management in schools," and "use of pest prevention and monitoring methods." However, less than one in six respondents gave any of these factors a "poor" rating.

Districts that reported using IPM were compared to those with no IPM programs for the same list of factors (Table 8E). A higher percentage of IPM districts responded "good" to all six factors, and a lower percentage of IPM districts responded "poor," suggesting that IPM districts were more satisfied with their districts' pest management progress.

Finally, a summary of ant and weed management practices deemed "compatible with" and "contrary to" IPM principles is presented in Table 8F. Responses to these questions are compared between districts that have and do not have IPM programs, as a reflection of how these programs translate into practice. We would expect a higher percentage of IPM districts to employ practices in the left-hand column, and a higher percentage of non-IPM districts to use the practices in the right-hand column. In general, these expectations are confirmed with two exceptions: "treating at regular time intervals for ants," a practice used by a slightly higher percentage of IPM districts, and "use of regular broadcast herbicides for turf or landscape weeds," also used by slightly more IPM districts.

## COMPARISONS OF 2002 RESULTS WITH 2001 BASELINE RESULTS

The 2002 and 2001 school IPM questionnaires were similar but not identical. Assessment of school district needs was a higher priority in the 2001 survey, since the School IPM Program was then in its infancy. In the 2002 survey, emphasis was placed on refining the questions (based on the 2001 results) to make the survey more useful as a long-term program evaluation instrument. Some questions were reworded or changed in the 2002 study to reflect more current issues, and the 2002 questionnaires were coded by district for future analytical purposes.

A comparison of findings between the 2001 and 2002 surveys is described below, and the data are presented in Table 9. Only data derived from questions that were either identical or reasonably similar in the two surveys are included.

### **Record Keeping and Inquiries**

Respondents to the baseline and the 2002 survey were asked how their school districts keep records, and how frequently they received inquiries from the community on pest management issues. Responses are shown in Section I (Tables 9A,B).

Generally, it appears that school districts in the 2002 study keep more records than they did in 2001. The percentage of districts recording pest sightings increased from 16% in 2001 to 23% in 2002, those recording results of pest monitoring grew from 11% to 18%, and those recording pest treatments used rose from 79% to 86% in 2002.

School districts fielded a similar number of community inquiries in 2001 and 2002. Very few school districts in either year indicated that they receive calls on more than a monthly basis, while the percentage of school districts receiving calls on a monthly basis rose from 6% to 8% in 2002, and the percentage receiving fewer than one call per month declined from 0.5% to 0%.

### **Treatment for Ants**

Respondents in both surveys were asked when their school districts decide to treat for ants and what methods they used (see Section II of Table 9).

The percentage of respondents who indicated their school districts decide on treatments for ants when they are “first noticed” declined from 41% in 2001 to 34% in 2002 (Table 9C). The percentage of districts reporting that they decide to treat for ants “when the number of ants exceeds pre-established thresholds,” which is considered part of a sound IPM program, rose from 10% to 13% in 2002. The percentage of school districts that “treat for ants at regular time intervals,” which is inconsistent with an IPM program, remained about the same.

With respect to methods of treatment, the use of ant baits by districts rose from 37% to 58% in 2002, use of soapy water sprays increased from 14% to 38%, and caulking in cracks to prevent entry grew from 19% to 64% (Table 9D). These changes suggest a movement towards reduced risk management methods. 2001 and 2002 responses could

not be compared for two methods due to changes in wording. The method "insecticidal spray from an aerosol can (for example, Raid®)" was listed as "aerosol insecticide spray" in 2001, which could encompass a wider variety of techniques and is therefore not comparable. This wording clarification could affect the number of responses to another option, "insecticides sprayed using other application method." Therefore, results to the latter question could not be compared between years either.

### **Treatment for Weeds**

Respondents in both surveys were asked how their school districts decide to treat for weeds and what methods they used (see Section III of Table 9).

The percentage of respondents who indicated they have problems with weeds on athletic fields/playgrounds declined significantly from 32% in 2001 to 22% in 2002, and problems in rights of way declined from 7% to 4% in 2002 (Table 9E). Respondents stating that their districts have major problems with weeds in their landscapes rose from 23% to 29% in 2002.

Respondents indicating they treat for weeds at regular intervals rose significantly from 29% to 35% in 2002 (Table 9F). Treatments "when weeds are first noticed" decreased from 28% to 23%, and treatments "when the abundance of weeds exceeds pre-established thresholds" declined from 34% to 30%.

The methods used to manage weeds changed somewhat from 2001 to 2002. The percentage of respondents who used regular broadcast methods—considered contrary to a sound IPM program—declined slightly from 27% in 2001 to 23% in 2002. The percentage using physical controls (e.g., hand pulling, cultivating, mowing) increased significantly from 56% to 68%, and the percentage using mulches grew slightly from 23% to 26%.

## SUMMARY AND CONCLUSIONS

Based on these findings, a number of conclusions appear to be warranted.

### **Awareness of programs**

The great majority of districts are aware of the DPR's California School IPM Program and the various IPM information sources available to them. These findings, coupled with the relatively high usage of DPR brochures/handouts and web site, suggest that DPR has been effective in disseminating information about its program.

### **Adoption of IPM, cost, and effectiveness**

Most districts report that they have adopted IPM programs, although the definition of IPM probably varies widely. The largest group of responding districts indicated that their IPM programs have resulted in more effective pest management, and more than half of the school districts said IPM is not more expensive in the long term. However, cost remains important, with more than one in four districts indicating that adopting IPM has increased their long-term costs. One possible explanation for these costs is the increased labor required to replace the use of certain herbicides. The variety of responses regarding cost impacts suggests the difficulties inherent in estimating costs of preventive maintenance practices.

### **Satisfaction with current pest management programs**

Most districts consider their pest management programs to be safe. They also rate as "good" the overall reduction of exposure to pesticides, contracting procedures for hiring outside pest control businesses, and communication between district pest managers and other district staff during the past year. Areas that could use improvement are making pest management training opportunities available to district staff, making technical information on pest management available, and using pest prevention and monitoring methods.

### **Compliance with the Healthy Schools Act of 2000**

The majority of California school districts are in compliance with at least three of the four major Healthy Schools Act requirements (posting, record keeping, annual notification, and maintaining lists for special notification), and about half of the districts are in compliance with all four. The record-keeping requirement shows the most room for improvement, with 60% of respondents reporting compliance with this item.XXX

### **Record keeping**

While most respondents keep records of pest treatments used (as required by the HSA), most do not keep other records important to an IPM program, such as records of building inspections, pest sightings or pest monitoring results. This suggests that the importance of record keeping should be emphasized, and that the distribution and demonstration of convenient pest management record-keeping systems would be beneficial.



### **Ant pest management practices**

Treatment for ants inside school buildings tends to occur when ants are first noticed, or when a certain number of complaints about ants are received. The most frequently mentioned methods for managing ants inside school buildings are caulking in cracks, ant baits, and soapy water spray, while the single most common method used was ant baits. All of these methods are considered compatible with an IPM program. However, a significant number of districts still use insecticides from aerosol cans—a practice not compatible with any ant IPM program. Generally, districts consider their efforts to prevent and treat for ant problems to be somewhat to very effective.

### **Weed pest management practices**

While districts are divided as to when they treat for weeds, the single largest group uses calendar treatments, that is, treating at regular, predetermined intervals. Calendar spraying of pesticides is generally considered to be contrary to IPM principles, although logistically it is sometimes a more convenient weed control strategy for landscaping personnel. HSA notification requirements may inadvertently promote calendar spraying; some schools have reported that they designate certain days of the year for pesticide treatments, thereby enabling them to send out fewer special notifications to parents.

The most frequently used methods for treating for weeds are physical controls (e.g., hand pulling, cultivating, mowing), and regular spot treatment of turf/landscaping with herbicides. The single most frequently used method seems to be physical controls. The surprisingly high use of broadcast herbicide treatments—considered contrary to IPM in this analysis—is most likely due to the pressure to maintain aesthetically pleasing turf in athletic fields. Respondents most commonly encounter weed problems in fence rows, landscaping, and athletic fields/playgrounds. Generally, districts consider their efforts to prevent and treat for weeds to be somewhat or very effective.

### **Contracting**

Most districts hire pest control contractors for pest control in food service areas. To a lesser extent, pest control contractors are used for indoor pest control other than in food service areas. Approximately one in three districts use contractors for outdoor or structural pest control. Since more district employees appear to be involved in outdoor/landscape pest management activities than in indoor activities, DPR could consider devoting a larger proportion of its school IPM trainings to this subject area. However, district employees still need to understand indoor preventive practices in order to properly oversee contractors, suggesting that indoor training efforts should be continued.

### **IPM compatible practices**

Overall, districts that reported adopting IPM programs are more likely to employ IPM-compatible practices than other districts (practices that DPR considers “compatible with” and “contrary to” IPM programs are listed in Table 1 below). The only exception is that roughly equal percentages of IPM and non-IPM districts continue to use broadcast herbicides for weeds. This result may stem from the pressure to maintain aesthetically pleasing turf in athletic fields, and from the perception that spot herbicide treatment is not

feasible for such large areas. Another interesting result is the percentage of districts using insecticides from aerosol cans, even among IPM districts. In light of this finding, further educational efforts could be directed at keeping cans out of the classroom.

### **Regional and demographic differences**

The frequency of community inquiries on pest management issues was highest in southeastern desert areas, urban areas and certain coastal areas of the state. In general, these areas also reported the highest proportion of districts adopting IPM programs. One notable exception is the San Joaquin Valley, which had relatively few community inquiries but a large proportion of districts adopting IPM. This exception could result from the region's agricultural character: Valley residents are probably more familiar with pesticide applications than their urban counterparts, and perhaps less likely to inquire about pesticide use in schools. At the same time, Valley respondents are probably more familiar with the term "IPM"—a common term in agricultural areas—and therefore more likely to classify their programs as IPM programs. Another potential contributing factor in the Valley is the influence of a former DPR Pest Management Alliance led by the Self-Insured Schools of California.

In comparing the results of this study with that of the 2001 Baseline Study, it is clear that improvements have been made by school districts in adopting IPM programs. In 2002, school districts kept more records and used more sound IPM practices for ants than in 2001. While there is still room for improvement, overall compliance with the Healthy Schools Act and awareness of the California School IPM Program is high.

**Table 1. Respondent Characteristics****A. Respondent distribution by region.**

<b>Region</b>	<b>Number of Respondents</b>	<b>Percentage of all Districts Responding</b>	<b>Percentage Response Within Region</b>	<b>Distribution of Districts by Region</b>
1=Sierra	54	12.9%	40.6%	13.5%
2=Central Valley	77	18.5%	35.8%	21.8%
3=Central Coastal	23	5.5%	41.8%	5.6%
4=Southeastern	38	9.1%	48.1%	8.0%
5=Los Angeles/Surrounding Area	94	22.5%	48.5%	19.7%
6=North Central	34	8.2%	40.5%	8.5%
7=North Coastal	27	6.5%	42.9%	6.4%
8=Bay Area	70	16.8%	42.4%	16.8%
Total	417	100.0%	42.4%	100.0%

**B. Respondent distribution by county.**

<b>County (Region)</b>	<b>Number of Responses</b>	<b>Percentage of Total Respondents</b>	<b>Percentage of Districts in County Responding</b>
Alameda (8)	8	1.9%	44.4%
Alpine (1)	0	0.0%	0.0%
Amador (1)	1	0.2%	100.0%
Butte (6)	6	1.4%	40.0%
Calaveras (1)	2	0.5%	50.0%
Colusa (6)	3	0.7%	75.0%
Contra Costa (8)	11	2.6%	61.1%
Del Norte (7)	0	0.0%	0.0%
El Dorado (1)	4	1.0%	25.0%
Fresno (2)	12	2.9%	35.3%
Glenn (6)	1	0.2%	12.5%
Humboldt (7)	14	3.4%	43.8%
Imperial (4)	4	1.0%	25.0%
Inyo (4)	2	0.5%	28.6%
Kern (2)	16	3.8%	34.0%
Kings (2)	5	1.2%	35.7%
Lake (7)	2	0.5%	28.6%
Lassen (1)	5	1.2%	45.5%
Los Angeles (5)	36	8.6%	44.4%
Madera (2)	7	1.7%	63.6%
Marin (8)	13	3.1%	68.4%
Mariposa (1)	1	0.2%	100.0%
Mendocino (7)	4	1.0%	33.3%

County (Region)	Number of Responses	Percentage of Total Respondents	Percentage of Districts in County Responding
Merced (2)	2	0.5%	10.0%
Modoc (1)	3	0.7%	100.0%
Mono (4)	2	0.5%	100.0%
Monterey (3)	7	1.7%	29.2%
Napa (8)	0	0.0%	0.0%
Nevada (1)	3	0.7%	30.0%
Orange (5)	14	3.4%	50.0%
Placer (1)	10	2.4%	52.6%
Plumas (1)	0	0.0%	0.0%
Riverside (4)	11	2.6%	47.8%
Sacramento (6)	10	2.4%	58.8%
San Benito (3)	3	0.7%	27.3%
San Bernardino (4)	21	5.0%	63.6%
San Diego (5)	25	6.0%	59.5%
San Francisco (8)	0	0.0%	0.0%
San Joaquin (2)	6	1.4%	40.0%
San Luis Obispo (3)	6	1.4%	60.0%
San Mateo (8)	8	1.9%	34.8%
Santa Barbara (5)	7	1.7%	30.4%
Santa Clara (8)	11	2.6%	33.3%
Santa Cruz (3)	7	1.7%	70.0%
Shasta (1)	7	1.7%	28.0%
Sierra (1)	0	0.0%	0.0%
Siskiyou (1)	13	3.1%	46.4%
Solano (8)	3	0.7%	50.0%
Sonoma (8)	15	3.6%	37.5%
Stanislaus (2)	14	3.4%	51.9%
Sutter (6)	1	0.2%	8.3%
Tehama (6)	10	2.4%	55.6%
Trinity (7)	7	1.7%	63.6%
Tulare (2)	14	3.4%	29.8%
Tuolumne (1)	3	0.7%	25.0%
Ventura (5)	12	2.9%	60.0%
Yolo (6)	2	0.5%	40.0%
Yuba (6)	3	0.7%	60.0%
Total	417	100.0%	42.4%

**C. District demographics flag (pop\_stat flag variable; see Methodology for explanation).  
Districts where pop\_stat = 1 were used in other demographic analyses below.**

Flag	Number of Respondents	Percentage
0 (schools within district fall into >1 demographic category)	138	33.1%
1 (schools within district fall into only 1 demographic category)	279	66.9%
Total	417	100.0%

**D. Distribution of flagged school districts among various demographic categories (pop\_stat variable).**

<b>Demographic category (pop_stat)</b>	<b>Number of Respondents</b>	<b>Percentage of Responding Districts</b>	<b>Percentage of Districts in each pop_statDemographic Category Responding</b>
1=Large city	15	5.4%	60.0%
2=Mid-size city	13	4.7%	40.6%
3=Urban fringes of large city	107	38.4%	47.8%
4=Urban fringes of mid-size city	21	7.5%	27.6%
5=Large town	1	0.4%	50.0%
6=Small town	13	4.7%	35.1%
7=Rural, outside MSA	58	20.8%	41.1%
8=Rural, inside MSA	51	18.3%	11.3%
Total	279	100.0%	

**Table 2. Pest Management Records and Inquiries****A. Pest management records kept by districts.**

<b>Respondents</b>	<b>Number of Respondents</b>	<b>Percentage</b>
Building inspections	164	39.2%
Pest sightings	95	22.7%
Results of pest monitoring	73	17.5%
Pest treatments used	360	86.1%
Total Number of Respondents	418	

**B. Frequency of inquiries received from the community concerning pest management issues.**

<b>Frequency</b>	<b>Number of Respondents</b>	<b>Percentage</b>
Daily	0	0.0%
Weekly	9	2.2%
Monthly	32	7.7%
Less than once per month	372	90.1%
Total	413	100.0%

**C. Frequency of inquiries from the community, by region.**

<b>Region</b>	<b>Weekly</b>	<b>Monthly</b>	<b>Less than 1 per month</b>	<b>Number of Respondents</b>
1=North Coast	0.0%	5.7%	94.3%	53
2=Central Valley	0.0%	5.2%	94.8%	77
3=Central Coastal	4.3%	4.3%	91.3%	23
4=Southeastern	5.4%	13.5%	81.1%	37
5=Los Angeles/Surrounding Area	4.3%	7.5%	88.2%	93
6=North Central	0.0%	5.9%	94.1%	34
7=North Coastal	3.8%	0.0%	96.2%	26
8=Bay Area	1.4%	14.5%	84.1%	69
Total				412

**D. Frequency of pest management-related inquiries from community, by county.**

County	Weekly	Monthly	Less than 1 per month	Number of Respondents
Alameda (8)	14.3%	28.6%	57.1%	7
Alpine (1)				0
Amador (1)	0.0%	0.0%	100.0%	1
Butte (6)	0.0%	0.0%	100.0%	6
Calaveras (1)	0.0%	0.0%	100.0%	2
Colusa (6)	0.0%	0.0%	100.0%	3
Contra Costa (8)	0.0%	9.1%	90.9%	11
Del Norte (7)				0
El Dorado (1)	0.0%	25.0%	75.0%	4
Fresno (2)	0.0%	8.3%	91.7%	12
Glenn (6)	0.0%	0.0%	100.0%	1
Humboldt (7)	7.7%	0.0%	92.3%	13
Imperial (4)	0.0%	0.0%	100.0%	4
Inyo (4)	0.0%	0.0%	100.0%	2
Kern (2)	0.0%	12.5%	87.5%	16
Kings (2)	0.0%	0.0%	100.0%	5
Lake (7)	0.0%	0.0%	100.0%	2
Lassen (1)	0.0%	0.0%	100.0%	5
Los Angeles (5)	5.6%	8.3%	86.1%	36
Madera (2)	0.0%	0.0%	100.0%	7
Marin (8)	0.0%	15.4%	84.6%	13
Mariposa (1)	0.0%	0.0%	100.0%	1
Mendocino (7)	0.0%	0.0%	100.0%	4
Merced (2)	0.0%	0.0%	100.0%	2
Modoc (1)	0.0%	0.0%	100.0%	3
Mono (4)	0.0%	0.0%	100.0%	2
Monterey (3)	0.0%	0.0%	100.0%	7
Napa (8)				0
Nevada (1)	0.0%	0.0%	100.0%	3
Orange (5)	7.1%	14.3%	78.6%	14
Placer (1)	0.0%	10.0%	90.0%	10
Plumas (1)				0
Riverside (4)	18.2%	18.2%	63.6%	11
Sacramento (6)	0.0%	0.0%	100.0%	10
San Benito (3)	0.0%	0.0%	100.0%	3
San Bernardino (4)	0.0%	15.0%	85.0%	20
San Diego (5)	0.0%	8.3%	91.7%	24
San Francisco (8)				0
San Joaquin (2)	0.0%	0.0%	100.0%	6
San Luis Obispo (3)	0.0%	0.0%	100.0%	6
San Mateo (8)	0.0%	12.5%	87.5%	8
Santa Barbara (5)	0.0%	0.0%	100.0%	7
Santa Clara (8)	0.0%	18.2%	81.8%	11
Santa Cruz (3)	14.3%	14.3%	71.4%	7
Shasta (1)	0.0%	0.0%	100.0%	7
Sierra (1)				0
Siskiyou (1)	0.0%	8.3%	91.7%	12
Solano (8)	0.0%	0.0%	100.0%	3
Sonoma (8)	0.0%	13.3%	86.7%	15

Allowable error = +/- 5%

County	Weekly	Monthly	Less than 1 per month	Number of Respondents
Stanislaus (2)	0.0%	7.1%	92.9%	14
Sutter (6)	0.0%	0.0%	100.0%	1
Tehama (6)	0.0%	0.0%	100.0%	10
Trinity (7)	0.0%	0.0%	100.0%	7
Tulare (2)	0.0%	0.0%	100.0%	14
Tuolumne (1)	0.0%	0.0%	100.0%	3
Ventura (5)	8.3%	0.0%	91.7%	12
Yolo (6)	0.0%	100.0%	0.0%	2
Yuba (6)	0.0%	0.0%	100.0%	3
Total				412

E. District demographics compared to the frequency of inquiries from the community on pest management issues. Only districts with all schools in one demographic category are included.

Demographic category	Frequency			Number of Respondents
	Weekly	Monthly	Less than 1 per month	
1=Large city	7.1%	14.3%	78.6%	14
2=Mid-size city	7.7%	0.0%	92.3%	13
3=Urban fringes of large city	2.8%	10.4%	86.8%	106
4=Urban fringes of mid-size city	0.0%	0.0%	100.0%	21
5=Large town	0.0%	0.0%	100.0%	1
6=Small town	0.0%	7.7%	92.3%	13
7=Rural, outside MSA	0.0%	0.0%	100.0%	56
8=Rural, inside MSA	0.0%	5.9%	94.1%	51



**Table 3. Information Sources Accessed**

Information Source	Aware, Not Accessed	Have Accessed	Not Aware Of	Number.
DPR School IPM web site	20.4%	56.9%	22.7%	383
Brochures/handouts from DPR	15.7%	61.4%	23.0%	383
Presentation by DPR staff	27.0%	29.4%	43.6%	374
Training on School IPM	22.6%	51.3%	26.2%	390
Information from licensed pest control businesses	13.9%	67.0%	19.1%	388
University of California resources	29.5%	27.3%	43.2%	366
Information from other Web site sources	22.7%	38.7%	38.7%	362
CDE, School Facility Planning Division	28.5%	24.9%	46.6%	369

**Table 4. Management of Ants Inside School Buildings****A. When respondents decide to treat for ants inside buildings.**

Decision criterion	Number of Respondents	Percentage *
At regular time intervals	49	16.1%
When ants are first noticed	103	33.9%
When number of ants exceed pre-established thresholds	39	12.8%
After certain number of complaints by constituents	94	30.9%
Other	19	6.3%
Total	304	100.0%

**B. Methods used to manage ants inside buildings.\***

Method	Number of Respondents	Percentage*
Insecticidal spray from aerosol can	59	17.1%
Insecticides sprayed using other application method	87	25.2%
Ant baits	201	58.3%
Soapy water spray	131	38.0%
Caulk in cracks	219	63.5%
Improved sanitation	76	22.0%
Other	124	35.9%
Total Number of Respondents	345	

**C. Single most frequently used method to manage ants.**

Method	Number of Respondents	Percentage*
Insecticidal spray from aerosol can (for example, Raid®)	28	8.7%
Insecticides sprayed using other application method	38	11.8%
Ant baits	101	31.5%
Soapy water spray	38	11.8%
Caulk in cracks	12	3.7%
Improved sanitation	70	21.8%
Other	34	10.6%
Total	321	100.0%

**D. Effectiveness of efforts to prevent ant problems**

Effectiveness	Number of Respondents	Percentage*
Very effective	61	18.0%
Somewhat effective	194	57.4%
Uncertain	38	11.2%
Somewhat ineffective	36	10.7%
Very ineffective	9	2.7%
Total	338	100.0%

Allowable error = +/- 5%

\*Percentage of total number of respondents who treat for ants

**E. Effectiveness of efforts to treat ant problems**

<b>Effectiveness</b>	<b>Number of Respondents</b>	<b>Percentage*</b>
Very effective	98	30.3%
Somewhat effective	185	57.3%
Uncertain	17	5.3%
Somewhat ineffective	21	6.5%
Very ineffective	2	0.6%
Total	323	100.0%

Allowable error = +/- 5%

\*Percentage of total number of respondents who treat for ants

**Table 5. Management of Weeds****A. Locations where weed problems are most troublesome.**

Location	Number of Respondents	Percentage**
Athletic fields/playgrounds	65	21.8%
Landscaping	86	28.9%
Rights of way	11	3.7%
Fence rows	94	31.5%
Paved areas/cracks in asphalt	30	10.1%
Other	12	4.0%
Total	298	100.0%

**B. When respondents decide to treat for weeds.**

Criterion	Number of Respondents	Percentage**
At regular time intervals	124	34.8%
When weeds are first noticed	82	23.0%
When weed abundance exceeds pre-established thresholds	105	29.5%
After certain number of complaints by constituents	7	2.0%
Other	38	10.7%
Total	356	100.0%

**C. What methods are used to manage weeds.**

Method	Number of Respondents	Percentage**
Regular broadcast methods of turf/landscaping with herbicides	86	22.8%
Regular spot treatment of turf/landscaping with herbicides	232	61.4%
Use of mulches	98	25.9%
Physical controls (hand pulling, cultivating, mowing)	259	68.5%
Flaming	28	7.4%
Irrigation management	64	16.9%
Other	37	9.8%
Total Number of Respondents	378	

**D. Single most frequently used method to control weeds.**

Method	Number of Respondents	Percentage**
Regular broadcast methods of turf/landscaping with herbicides	40	12.4%
Regular spot treatment of turf/landscaping with herbicides	110	34.2%
Use of mulches	10	3.1%
Physical controls (hand pulling, cultivating, mowing)	135	41.9%
Flaming	5	1.6%
Irrigation management	5	1.6%
Other	17	5.3%
Total	322	100.0%

Allowable error = +/- 5%

\*\*Percentage of total number of respondents who treat for weeds

**E. Effectiveness of efforts to prevent weed problems.**

<b>Effectiveness</b>	<b>Number of Respondents</b>	<b>Percentage**</b>
Very effective	79	21.1%
Somewhat effective	210	56.1%
Uncertain	24	6.4%
Somewhat ineffective	38	10.2%
Very ineffective	23	6.1%
Total	374	100.0%

**F. Effectiveness of efforts to treat weed problems**

<b>Effectiveness</b>	<b>Number of Respondents</b>	<b>Percentage**</b>
Very effective	120	32.6%
Somewhat effective	215	58.4%
Uncertain	6	1.6%
Somewhat ineffective	19	5.2%
Very ineffective	8	2.2%
Total	368	100.0%

Allowable error = +/- 5%

\*\*Percentage of total number of respondents who treat for weeds

**Table 6. Contracts with Pest Control Businesses****A. Percentages of districts having contracts with pest control businesses**

<b>Contract</b>	<b>Number of Respondents</b>	<b>Percentage</b>
For structural pest control	141	33.7%
For food service area pest control	222	53.1%
For indoor pest control other than food service area	189	45.2%
For outdoor pest control	152	36.4%
No contracts	101	24.2%
Total Number of Respondents	418	

**B. Breakdown of districts having contracts with pest control businesses for various combinations of purposes**

<b>Contracts</b>	<b>Number of Respondents</b>	<b>Percentage</b>
Structural, Food, Indoor Other, & Outdoor	49	15.5%
Food service only	39	12.3%
Structural, Food, & Indoor other	37	11.7%
Food & Indoor Other	34	10.7%
Food, Indoor Other, & Outdoor	33	10.4%
Outdoor only	32	10.1%
Structural only	22	6.9%
Indoor Other (than food service area only)	15	4.7%
Structural & Food Service	15	4.7%
Indoor Other & Outdoor	14	4.4%
Food & Outdoor	9	2.8%
Structural, Food, & Outdoor	6	1.9%
Structural & Outdoor	5	1.6%
Structural, Indoor Other, & Outdoor	5	1.6%
Structural & Indoor Other	2	0.6%
Total Number of Respondents	418	100.0%

Allowable error = +/- 5%

\*Percentage of total number of respondents who treat for ants

\*\*Percentage of total number of respondents who treat for weeds

†Percentage of total number of districts that reported having IPM programs

††Percentage of total number of districts that reported not having IPM programs, or "not sure"

**Table 7. Integrated Pest Management Programs****A. Awareness of DPR's California School Integrated Pest Management Program.**

	Number of Respondents	Percentage
Yes [aware]	364	87.3%
No [not aware]	53	12.7%
Total	417	100.0%

**B. School districts reporting that they have adopted an IPM program.**

	Number of Respondents	Percentage
Yes [adopted]	288	69.7%
No [not adopted]	97	23.5%
Not sure	28	6.8%
Total	413	100.0%

**C. Years since school district first adopted an IPM program.**

Average	2.63
Median	2.00
Range	1-20

**D. School districts that report having IPM programs, by region.**

Region	Yes [have IPM program]	No [no IPM program]	Not Sure	Number of Respondents
1=North Coast	66.0%	28.3%	5.7%	53
2=Central Valley	70.7%	21.3%	8.0%	75
3=Central Coastal	52.2%	43.5%	4.3%	23
4=Southeastern	86.8%	2.6%	10.5%	38
5=Los Angeles/Surrounding Area	72.0%	22.6%	5.4%	93
6=North Central	61.8%	29.4%	8.8%	34
7=North Coastal	59.3%	33.3%	7.4%	27
8=Bay Area	72.5%	21.7%	5.8%	69

**E. School districts that report having IPM programs, by county.**

County	Yes [have IPM program]	No [no IPM program]	Not Sure	Number of Respondents
Alameda (8)	75.0%	12.5%	12.5%	8
Alpine (1)				0
Amador (1)	100.0%	0.0%	0.0%	1
Butte (6)	66.7%	33.3%	0.0%	6
Calaveras (1)	50.0%	0.0%	50.0%	2
Colusa (6)	66.7%	33.3%	0.0%	3
Contra Costa (8)	72.7%	18.2%	9.1%	11
Del Norte (7)				0
El Dorado (1)	100.0%	0.0%	0.0%	4
Fresno (2)	83.3%	8.3%	8.3%	12

Allowable error = +/- 5%

\*Percentage of total number of respondents who treat for ants

\*\*Percentage of total number of respondents who treat for weeds

†Percentage of total number of districts that reported having IPM programs

††Percentage of total number of districts that reported not having IPM programs, or "not sure"

County	Yes [have IPM program]	No [no IPM program]	Not Sure	Number of Respondents
Glenn (6)	100.0%	0.0%	0.0%	1
Humboldt (7)	71.4%	21.4%	7.1%	14
Imperial (4)	50.0%	0.0%	50.0%	4
Inyo (4)	100.0%	0.0%	0.0%	2
Kern (2)	87.5%	6.3%	6.3%	16
Kings (2)	100.0%	0.0%	0.0%	5
Lake (7)	0.0%	100.0%	0.0%	2
Lassen (1)	40.0%	60.0%	0.0%	5
Los Angeles (5)	66.7%	27.8%	5.6%	36
Madera (2)	57.1%	28.6%	14.3%	7
Marin (8)	84.6%	15.4%	0.0%	13
Mariposa (1)	100.0%	0.0%	0.0%	1
Mendocino (7)	100.0%	0.0%	0.0%	4
Merced (2)	50.0%	50.0%	0.0%	2
Modoc (1)	66.7%	0.0%	33.3%	3
Mono (4)	50.0%	50.0%	0.0%	2
Monterey (3)	57.1%	42.9%	0.0%	7
Napa (8)				0
Nevada (1)	66.7%	33.3%	0.0%	3
Orange (5)	57.1%	35.7%	7.1%	14
Placer (1)	80.0%	20.0%	0.0%	10
Plumas (1)				0
Riverside (4)	90.9%	9.1%	0.0%	11
Sacramento (6)	70.0%	30.0%	0.0%	10
San Benito (3)	0.0%	100.0%	0.0%	3
San Bernardino (4)	90.5%	0.0%	9.5%	21
San Diego (5)	68.0%	24.0%	8.0%	25
San Francisco (8)				0
San Joaquin (2)	100.0%	0.0%	0.0%	5
San Luis Obispo (3)	100.0%	0.0%	0.0%	6
San Mateo (8)	75.0%	25.0%	0.0%	8
Santa Barbara (5)	100.0%	0.0%	0.0%	6
Santa Clara (8)	80.0%	10.0%	10.0%	10
Santa Cruz (3)	28.6%	57.1%	14.3%	7
Shasta (1)	71.4%	14.3%	14.3%	7
Sierra (1)				0
Siskiyou (1)	50.0%	50.0%	0.0%	12
Solano (8)	100.0%	0.0%	0.0%	3
Sonoma (8)	46.7%	46.7%	6.7%	15
Stanislaus (2)	35.7%	50.0%	14.3%	14
Sutter (6)	0.0%	100.0%	0.0%	1
Tehama (6)	60.0%	20.0%	20.0%	10
Trinity (7)	28.6%	57.1%	14.3%	7
Tulare (2)	61.5%	30.8%	7.7%	13
Tuolumne (1)	66.7%	33.3%	0.0%	3
Ventura (5)	100.0%	0.0%	0.0%	12
Yolo (6)	100.0%	0.0%	0.0%	2
Yuba (6)	33.3%	33.3%	33.3%	3

Allowable error = +/- 5%

\*Percentage of total number of respondents who treat for ants

\*\*Percentage of total number of respondents who treat for weeds

†Percentage of total number of districts that reported having IPM programs

††Percentage of total number of districts that reported not having IPM programs, or "not sure"



**F. School districts that have IPM programs, by demographic code (pop\_stat).**

Demographic code	Yes [have IPM program]	No [no IPM program]	Not Sure	Number of Respondents
1=Large city	71.4%	21.4%	7.1%	14
2=Mid-size city	76.9%	15.4%	7.7%	13
3=Urban fringes of large city	72.9%	22.4%	4.7%	107
4=Urban fringes of mid-size city	71.4%	14.3%	14.3%	21
5=Large town	100.0%	0.0%	0.0%	1
6=Small town	75.0%	16.7%	8.3%	12
7=Rural, outside MSA	53.4%	34.5%	12.1%	58
8=Rural, inside MSA	58.0%	32.0%	10.0%	50

Allowable error = +/- 5%

\*Percentage of total number of respondents who treat for ants

\*\*Percentage of total number of respondents who treat for weeds

†Percentage of total number of districts that reported having IPM programs

††Percentage of total number of districts that reported not having IPM programs, or “not sure”

**G. Existence of a school IPM program compared to the frequency of inquiries from the community on pest management issues.**

	Weekly	Monthly	Less than 1 per month	Number of Respondents
Yes [have IPM program]	2.5%	9.5%	88.0%	284
No [no IPM program]	2.1%	2.1%	95.8%	96
Not Sure	0.0%	3.6%	96.4%	28

**H. Districts that have and do not IPM programs compared to pest management methods used.**

<i>Methods used for ant management inside buildings</i>	With IPM Programs		No IPM Programs or Not Sure	
	Number	Percentage*	Number	Percentage*
Insecticidal spray from aerosol can	38	13.2%	21	16.8%
Insecticides sprayed using other application method	56	19.4%	30	24.0%
Ant baits	161	55.9%	51	40.8%
Soapy water spray	102	35.4%	27	21.6%
Caulk in cracks	94	32.6%	29	23.2%
Improved sanitation	165	57.3%	53	42.4%
Other	60	20.8%	13	10.4%
Total Number of Respondents who treat for ants	288		125	
<i>Methods used for weed management</i>	With IPM Programs		No IPM Programs or Not Sure	
	Number	Percentage**	Number	Percentage**
Regular broadcast methods of turf/landscaping with herbicides	61	21.2%	23	18.4%
Regular spot treatment of turf/landscaping with herbicides	139	48.3%	72	57.6%
Use of mulches	80	27.8%	16	12.8%
Physical controls (hand pulling, cultivating, mowing)	186	64.6%	71	56.8%
Flaming	19	6.6%	9	7.2%
Irrigation management	54	18.8%	9	7.2%
Other	29	10.1%	7	5.6%
Total Number of Respondents who treat for weeds	288		125	

**I. Practices or policies school districts have officially adopted.**

Practice or Policy	Number	Percentage
Written policy to use least-toxic pest management practices	185	44.3%
Written list of pesticide products approved for use	207	49.5%
Written policy requiring monitoring of pest levels	61	14.6%
School site maintains records of all pesticides used for 4 years	249	59.6%
District/School provides annual notification of expected pesticide use	317	75.8%
District/School maintains list of parents wanting to be notified	296	70.8%
Warning signs posted at least 24 hours before/72 hours after treatment	351	84.0%
Total Number of Respondents	418	

Allowable error = +/- 5%

\*Percentage of total number of respondents who treat for ants

\*\*Percentage of total number of respondents who treat for weeds

†Percentage of total number of districts that reported having IPM programs

††Percentage of total number of districts that reported not having IPM programs, or "not sure"

**Table 8. Overall Pest Management Program Evaluation****A. Self-reported effectiveness of school districts' IPM programs.**

<b>Effectiveness</b>	<b>Number of Respondents</b>	<b>Percentage†</b>
Resulted in more effective pest management	117	40.6%
Made no difference in pest management effectiveness	58	20.1%
Resulted in less effective pest management	59	20.5%
Uncertain/No opinion	54	18.8%
<b>Total</b>	<b>288</b>	<b>100.0%</b>

**B. Long-term costs of IPM programs**

<b>Effect of IPM on Costs</b>	<b>Number or Respondents</b>	<b>Percentage†</b>
Reduced long-term cost of pest management	80	27.7%
Had no impact on long-term cost of pest management	72	24.9%
Increased long-term cost of pest management	82	28.4%
Uncertain/No opinion	55	19.0%
<b>Total</b>	<b>289</b>	<b>100.0%</b>

Allowable error = +/- 5%

\*Percentage of total number of respondents who treat for ants

\*\*Percentage of total number of respondents who treat for weeds

†Percentage of total number of districts that reported having IPM programs

††Percentage of total number of districts that reported not having IPM programs, or "not sure"

**C. Districts' overall rating of the safety of their current pest management programs.**

Rating	Number of Respondents	Percentage
Very good	214	51.8%
Good	157	38.0%
Fair	37	9.0%
Poor	5	1.2%
Very poor	0	0.0%
Total	413	100.0%

**D. Districts' self-rating of selected factors relating to the success of school IPM programs..**

Factor	Good	Fair	Poor	Number of Resp.
Communication between district pest manager and other district staff	57.6%	34.7%	7.6%	406
Availability of technical information on pest management	49.6%	38.3%	12.1%	405
Use of pest prevention and monitoring methods	43.3%	45.5%	11.1%	404
Overall reduction of exposure to pesticides	73.0%	24.8%	2.2%	408
Training opportunities for district staff in pest management	37.9%	45.6%	16.5%	406
Contracting procedures for hiring outside pest control services	58.4%	35.4%	6.2%	370

**E. Satisfaction with factors relating to the success of school IPM programs, compared between IPM and non-IPM districts.\*\*\***

Factor	Respondents rating factor as "good"			
	With IPM Programs		No IPM Programs or Not Sure	
	Number	Percentage†	Number	Percentage††
Overall reduction in exposure to pesticides	220	78.0%	75	62.0%
Contracting procedures for hiring outside pest control services	158	61.0%	58	55.0%
Communication between district pest manager and other district staff	173	61.0%	57	49.0%
Availability of technical information on pest management	154	55.0%	45	38.0%
Use of pest prevention and monitoring methods	132	47.0%	41	35.0%
Training opportunities for district staff in pest management	125	44.0%	28	23.0%

Allowable error = +/- 5%

\*Percentage of total number of respondents who treat for ants

\*\*Percentage of total number of respondents who treat for weeds

†Percentage of total number of districts that reported having IPM programs

††Percentage of total number of districts that reported not having IPM programs, or "not sure"

**F. Use IPM-compatible and IPM-incompatible pest management practices compared between districts with and without IPM programs (self-reported). Districts reporting that they were “not sure” if they had an IPM program are pooled with “non-IPM districts.”**

Practices compatible with IPM			Practices contrary to IPM		
	IPM districts	Non-IPM districts		IPM districts	Non-IPM districts
<i>Keeping records of:</i>			<i>Treating at regular time intervals:</i>		
Building inspections	44%	28%	For ants	17%*	13%*
Pest sightings	27%	14%	For weeds	28%**	33%*
Results of pest monitoring	20%	12%	Using insecticidal sprays from aerosol cans for ants	13%*	17%*
Pest treatments used	89%	79%	Using regular broadcast of herbicides for turf or landscape weeds	21%**	18%**
<i>Treatment decisions based on pre-established thresholds:</i>					
For ants	14%*	4%*			
For weeds	29%**	18%**			
Ant baits	56%*	41%*			
Improving sanitation for ant control	57%*	42%*			
Caulking cracks for ant control	33%*	23%*			
Using physical controls for weeds	65%**	57%**			
Using irrigation management for weed control	19%**	7%**			
Using mulches for weed control	28%**	13%**			
Using flaming for weed control	7%**	7%**			

Allowable error = +/- 5%

\*Percentage of total number of respondents who treat for ants

\*\*Percentage of total number of respondents who treat for weeds

†Percentage of total number of districts that reported having IPM programs

††Percentage of total number of districts that reported not having IPM programs, or “not sure”

**Table 9. Comparison of 2002 Survey Results with 2001 Baseline Results**

**Section I: Recordkeeping and Inquiries**

**A. Pest management records kept by districts.**

Records	2001		2002	
	Number	Percentage	Number	Percentage
Building inspections	n.a.	n.a.	164	39.2%
Pest sightings	61	15.5%	95	22.7%
Results of pest monitoring	44	11.2%	73	17.5%
Pest treatments used	312	79.2%	360	86.1%
Total Number of Respondents	394		418	

**B. Frequency of inquiries from the community concerning pest management issues**

Records	2001		2002	
	Number	Percentage	Number	Percentage
Daily	2	0.5%	0	0.0%
Weekly	9	2.4%	9	2.2%
Monthly	25	6.5%	32	7.7%
Less than once per month	346	90.6%	372	90.1%
Total	382	100.0%	413	100.0%

**Section II: Management of Ants**

**C. When respondents decide to treat for ants inside buildings**

Criterion	2001		2002	
	Number	Percentage*	Number	Percentage*
At regular time intervals	48	16.4%	49	16.1%
When ants are first noticed	119	40.8%	103	33.9%
When number of ants exceed pre-established thresholds	29	9.9%	39	12.8%
After certain number of complaints by constituents	87	29.8%	94	30.9%
Other	9	3.1%	19	6.3%
Total	292	100.0%	304	100.0%

Allowable error = +/- 5%

\*Percentage of total number of respondents who treat for ants

\*\*Percentage of total number of respondents who treat for weeds

†Percentage of total number of districts that reported having IPM programs

††Percentage of total number of districts that reported not having IPM programs, or "not sure"

**D. Methods used to manage ants inside buildings**

Method	2001		2002	
	Number	Percentage*	Number	Percentage*
Insecticidal spray from aerosol can §	127	32.2%	59	17.1%
Insecticides sprayed using other application method §	81	20.6%	87	25.2%
Ant baits	146	37.1%	201	58.3%
Soapy water spray	53	13.5%	131	38.0%
Caulk in cracks	75	19.0%	219	63.5%
Improved sanitation	n.a.	n.a.	76	22.0%
Other	52	13.2%	124	35.9%
Total Number of Respondents	394		345	

**Section III: Management of Weeds****E. Location of most weed problems**

Location	2001		2002	
	Number	Percentage**	Number	Percentage**
Athletic fields/playgrounds	115	32.2%	65	21.8%
Landscaping	83	23.2%	86	28.9%
Rights of way	25	7.0%	11	3.7%
Fence rows	118	33.1%	94	31.5%
Paved areas/cracks in asphalt	n.a.	n.a.	30	10.1%
Other	16	4.5%	12	4.0%
Total	357	100.0%	298	100.0%

**F. When respondents decide to treat for weeds**

Criterion	2001		2002	
	Number	Percentage**	Number	Percentage**
At regular time intervals	104	29.1%	124	34.8%
When weeds are first noticed	98	27.5%	82	23.0%
When weed abundance exceeds pre-established thresholds	121	33.9%	105	29.5%
After certain number of complaints by constituents	13	3.6%	7	2.0%
Other	21	5.9%	38	10.7%
Total	357	100.0%	356	100.0%

**G. What methods are used to manage weeds**

Method	2001		2002	
	Number	Percentage**	Number	Percentage**
Regular broadcast treatment of turf/landscaping with herbicides	107	27.2%	86	22.8%
Regular spot treatment of turf/landscaping with herbicides	246	62.4%	232	61.4%
Use of mulches	91	23.1%	98	25.9%
Physical controls (hand pulling, cultivating, mowing)	219	55.6%	259	68.5%
Flaming	29	7.4%	28	7.4%
Irrigation management	n.a.	n.a.	64	16.9%
Other	34	8.6%	37	9.8%
Total Number of Respondents	394	100.0%	378	100.0%

Allowable error = +/- 5%

\*Percentage of total number of respondents who treat for ants

\*\*Percentage of total number of respondents who treat for weeds

\*\*\* Percentage of districts who reported having IPM programs

§ Due to wording changes, responses from 2002 and 2001 cannot be compared for this item

## APPENDIX A QUESTIONNAIRE USED FOR THE SURVEY

### *California School Integrated Pest Management Program* **2002 Survey of School Districts**

1. Which of the following best describes how your school district keeps records on pest management treatments? *Please check all that apply.*

1. ☐ Records are kept of building inspections
2. ☐ Records are kept of pest sightings
3. ☐ Records are kept of results of pest monitoring
4. ☐ Records are kept of pest treatments used

2. Please indicate whether you have accessed **each** of the following information resources on pest management in schools. *Please check only one box for each information resource.*

	Aware of but have not accessed	Have accessed	Not aware of
a. DPR School IPM Web site.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Brochures/handouts from DPR .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Presentations on school IPM by DPR staff.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Trainings on school integrated pest management (IPM) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Information provided by licensed pest control business .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. University of California resources .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Information from other Web site sources.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. California Department of Education, School Facility Planning Division.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

***Questions 3 through 6 concern ANTS. If you have not treated for ants INSIDE SCHOOL BUILDINGS within the last year, please go to Question 7.***

3. Which **one** of the following best describes how you normally decide that treatment for ants is necessary inside school buildings? *Please check only one answer.*

1. ☐ Treatment undertaken at regular time intervals (for example, weekly or monthly)
2. ☐ Treatment when ants are first noticed
3. ☐ Treatment when number of ants exceeds a pre-established threshold
4. ☐ Treatment after a certain number of complaints from staff, teachers, students, and/or parents
5. ☐ Other (please specify) \_\_\_\_\_

4. Which method(s) do you typically use to manage ants **inside** buildings? *Please check all that apply.*

1. ☐ Insecticidal spray from an aerosol can (for example, Raid®)
2. ☐ Insecticides sprayed using other application method
3. ☐ Ant baits
4. ☐ Soapy water spray
5. ☐ Caulk in cracks to prevent entry of ants
6. ☐ Improved sanitation
7. ☐ Other (please specify) \_\_\_\_\_



5. Which **one** of the above methods do you use **most frequently** to manage ants **inside** school buildings? *Please indicate the number of the line from Question 4.* \_\_\_\_\_
6. Overall, how effective do you consider your efforts to prevent and treat ant problems inside school buildings? *Please answer both questions below.*

**A. Preventing ant problems  
inside school buildings**

(for example, barriers, caulking, or sanitation)

1. ☐ Very effective
2. ☐ Somewhat effective
3. ☐ Uncertain
4. ☐ Somewhat ineffective
5. ☐ Very ineffective

**B. Treating ant problems  
inside school buildings?**

(for example, pesticide sprays or baits)

1. ☐ Very effective
2. ☐ Somewhat effective
3. ☐ Uncertain
4. ☐ Somewhat ineffective
5. ☐ Very ineffective

**Questions 7 through 11 concern WEEDS. If you have not treated for weeds within the last year, please go to Question 12.**

7. At which **one** of the following locations do you typically have the most trouble with weeds? *Please check only one answer.*
1. ☐ Athletic fields/playgrounds
  2. ☐ Landscaping
  3. ☐ Rights of way
  4. ☐ Fence rows
  5. ☐ Paved areas/cracks in asphalt
  6. ☐ Other (please specify) \_\_\_\_\_
8. Which **one** of the following best describes how you decide that treatment for weeds is necessary? *Please check only one answer.*
1. ☐ Treatment undertaken at regular time intervals (for example, monthly)
  2. ☐ Treatment when weeds are first noticed
  3. ☐ Treatment when weed abundance exceeds a pre-established threshold
  4. ☐ Treatment after a certain number of complaints from staff, teachers, students, and/or parents
  5. ☐ Other (please specify) \_\_\_\_\_
9. Which method(s) do you typically use to manage weeds? *Please check all that you typically use.*
1. ☐ Regular broadcast treatment of turf and/or landscaping with herbicides
  2. ☐ Regular spot treatment of turf and/or landscaping with herbicides
  3. ☐ Use of mulches
  4. ☐ Physical controls such as hand pulling, cultivating, mowing
  5. ☐ Flaming
  6. ☐ Irrigation management
  7. ☐ Other (please specify) \_\_\_\_\_
10. Which **one** of the methods above do you use **most frequently** to control weeds? *Please indicate the number of the line from Question 9.* \_\_\_\_\_
11. Overall, how effective do you consider your efforts to prevent and treat weed problems? *Please answer both questions below.*
- A. Preventing weed problems**

(for example, barriers, caulking, or sanitation)

  1. ☐ Very effective
  2. ☐ Somewhat effective
  3. ☐ Uncertain
  4. ☐ Somewhat ineffective
  5. ☐ Very ineffective

**B. Treating weed problems**

(for example, pesticide sprays or baits)

  1. ☐ Very effective
  2. ☐ Somewhat effective
  3. ☐ Uncertain
  4. ☐ Somewhat ineffective
  5. ☐ Very ineffective

***The following questions concern your school district's general pest management practices.***

12. Which **one** of the following best describes how frequently your district receives inquiries from the community concerning pest management issues? *Please check only one answer.*
1. ☐ Daily
  2. ☐ Weekly
  3. ☐ Monthly
  4. ☐ Less than once per month
13. For what type(s) of pest control does your school district have contracts with pest control businesses? *Please check all appropriate boxes. If your district does not contract with pest control businesses, please go to Question 14.*
1. ☐ Contracts for structural pest control (for example, damage to the building)
  2. ☐ Contracts for food service area pest control
  3. ☐ Contracts for indoor pest control other than in food service area
  4. ☐ Contracts for outdoor pest control (for example, turf or landscape)
14. Are you aware of DPR's California School Integrated Pest Management (IPM) Program?
1. ☐ Yes
  2. ☐ No
15. Has your school district adopted an IPM program?
1. ☐ Yes      How many years ago? \_\_\_\_\_ → ***Go to Question 16***
  2. ☐ No      → ***Go to Question 18***
  3. ☐ Not sure      → ***Go to Question 18***
16. Do you think your school district's IPM program has: *(Please check only one answer)*
1. ☐ Resulted in more effective pest management
  2. ☐ Made no difference in pest management effectiveness
  3. ☐ Resulted in less effective pest management
  4. ☐ Uncertain/no opinion
17. Do you think your school district's IPM program has: *(Please check only one answer)*
1. ☐ Reduced the long-term cost of pest management
  2. ☐ Had no impact on the long-term cost of pest management
  3. ☐ Increased the long-term costs of pest management
  4. ☐ Uncertain/no opinion
18. Which of the following practices or policies has your school district officially adopted (through a school board action or administrator's directive)? *Please check all that have been officially adopted.*
1. ☐ Written policy requiring the use of least-toxic pest management practices
  2. ☐ Written list of pesticide products approved for use in district schools
  3. ☐ Written policy requiring the monitoring of pest levels
  4. ☐ Each school site maintains records of all pesticides used for at least four years, and makes these records available to the public
  5. ☐ District or school annually provides staff and parents with written notification of expected pesticide use at their school
  6. ☐ District or school maintains a list of parents wanting to be notified of specific pesticide applications
  7. ☐ Warning signs are posted at least 24 hours before and 72 hours after pesticide treatment

19. Overall, how would you rate the safety of your current pest management program?

1. ☐ Very good
2. ☐ Good
3. ☐ Fair
4. ☐ Poor
5. ☐ Very poor

20. Please rate **each** of the following for the past year in your school district.

	<b>Good</b>	<b>Fair</b>	<b>Poor</b>
a. Communication between district pest manager(s) and other district staff (teachers, administrators) on pest management issues .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Availability of technical information on pest management in schools.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Use of pest prevention and monitoring methods .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Overall reduction of exposure to pesticides .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Training opportunities for district staff in pest management.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Contracting procedures used for hiring outside pest control services .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

21. Do you have any other comments or suggestions? \_\_\_\_\_

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Thank you for completing our survey! Please return your completed questionnaire in the postage-paid envelope by May 15.